Sex Offender Assessment Using the Sexual Adjustment Inventory (SAI)

by Lisa Degiorgio and Herman Lindeman*

Sex Offenders and Recidivism

National concerns about sexual offenders and their propensity to reoffend have increased over the last few years, following increased media attention and several high profile events (Hall & Hall, 2007; McGrath et al., 2011). These factors have fuelled social perceptions that sexual offenders cannot benefit from treatment and that, as a group, sex offenders are more likely to reoffend than other criminals (Schwartz, 2011). Harris and Hanson (2004), in a meta-analysis using data from 4,724 offenders that spanned 15 years, found that approximately 25% of sexual offenders were charged with another sexual offense. Hanson and Morton-Bourgon (2005), using a larger sample (N = 29,450), found that the recidivism rate of sexual offenders for a sexual offense was 13.7% over six years. This rate of sexually reoffending was significantly lower than general recidivism rates.

Despite the lower overall recidivism rate, it is important to note that the number of individuals who may be victimized by sexual offenders is high, depending on the type of sexual offense (Harris & Hanson, 2004; Weinrott & Saylor, 1991). Weinrott and Saylor (1991) found that 99 convicted offenders confessed to more than 8,000 sexual contacts with 959 children. These findings suggest that once released, sexual offenders may perpetrate many crimes before they are caught.

Recidivism has become a public safety concern (Schwartz, 2011; Skelton & Vess, 2008), with considerable efforts and energy devoted to minimizing the risk posed by sexual offenders. Methods of minimizing the risk of reoffending have included public policy actions such as sex offender registries, community notification, geographic restrictions on housing and proximity to locations where children may be present, and indefinite civil commitments (Schwartz, 2011). Other methods used to affect recidivism have focused on appropriate identification of offender risk and treatment needs once an individual has entered the criminal justice system.

With accurate identification of risk potential and factors associated with recidivism, appropriate interventions and treatments can be matched to meet the needs of an offender. This is often referred to as the "risk principle" (Andrews & Bonta, 2010). The risk principle is a critical issue in treatment because treatment that is matched to an offender's risk level is more effective than treatment that is not (Andrews & Bonta, 2010; Hanson et al., 2009). Higher risk sex offenders should receive higher intensity interventions, and lower risk sex offenders should receive lower intensity interventions (McGrath et al., 2011).

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Assessing Risk: Four Generations

Assessing offender risk has evolved over the last 30 years and has expanded to incorporate treatment planning and case management into the assessment process (Andrews & Bonta, 2010). As described by Andrews and Bonta (2010), first-generation assessment strategies relied on clinical judgment for determining offender risk. This approach demonstrated very poor predictive validity and was replaced by the use of actuarial risk scales.

The second-generation, actuarial, approach generally assigned a score to factors associated with offender behavior (static and historical). The scores were summed to create a total risk score that proved more accurate than clinical judgment in predicting risk and that was useful in determining offender classification and assigning appropriate levels of supervision.

The third generation of instruments built upon the success of actuarial scales and the incorporation of offender needs and included items that are amenable to change. Identifying risk potential and treatment needs enables corrections and treatment staff to allocate resources.

Fourth-generation assessment instruments integrate assessment and case management principles to ensure that offenders' "personal strengths and prosocial orientation" (Andrews & Bonta, 2010, p. 318) are identified to maximize treatment benefits.

Although the use of assessment instruments has improved predictive validity, there are problems associated with actuarial scales. Frequently expressed concerns include false positive errors and cultural relevance.

Actuarial risk predictions are estimated using actual occurrences of an event (base rates). The precision of prediction is compromised when base rates are relatively low, as in the case of sexual offenses and recidivism. In addition, base rates vary across populations and settings. When base rates are low, the probability of making false positive errors (individuals are incorrectly identified) is increased (Craig & Beech, 2009; Craig et al., 2005). This limitation needs to be considered when interpreting individual offender risk predictions.

A second criticism of risk assessments has been their limited application to diverse populations. The most frequently cited sexual offender risk assessments were developed in North America, Australia, and the United Kingdom. These instruments may not reflect prison populations or racial, ethnic, or cultural backgrounds (Craig & Beech, 2009; Craig et al., 2005; Lindeman, 2011). As noted by Lindeman (2011), there have been some issues involving risk assessments that have been used with Asian and African-American populations. This limitation must also be carefully considered when interpreting individual results.

The recidivism rate of sexual offenders for a sexual offense was 13.7% over six years. This rate of sexually reoffending was significantly lower than general recidivism rates.

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Identifying Risk Factors

Identifying risk factors has been, and remains, the primary function of assessment instruments. In addition to the risk factors addressed above (age and sex offender type), researchers have identified factors associated with offender recidivism. These factors are grouped into two categories: static factors and dynamic factors.

Static Factors. Static factors are historical aspects of the offender that are considered unchangeable. Static factors for a sexual offender are:

- Current age of the offender;
- Prior criminal history;
- Prior arrest history;
- Age of first conviction for an offense; and
- Victim characteristics (e.g., male victims, female victims, stranger victims) (Andrews & Bonta, 2010).

Dynamic Factors. Dynamic factors are aspects of the offender that are considered to be changeable through intervention or treatment. As reported by Yates (2009), dynamic factors for sex offender recidivism include:

- Social relationships and associations;
- Self-regulation;
- Sexual self-regulation;
- Deviant sexual interests;
- Sexual preoccupation;
- Substance abuse; and
- Antisocial orientation.

Dynamic factors not associated with recidivism include:

- Denial;
- Victim empathy;
- Psychological issues (e.g., self-esteem, anxiety); and
- Personal distress.

These dynamic factors, although not predictive of recidivism, have implications for intervention and treatment recommendations, as well as for offender treatment compliance and outcomes (Yates, 2009).

The Sexual Adjustment Inventory Study

The Sexual Adjustment Inventory (SAI) is a multidimensional sex offender assessment that combines static and dynamic factors in its sex offender profile. Davignon (2002) investigated the validity of the SAI with a sample of 3,616 male and female offenders and confirmed its validity and reliability. This article provides the theoretical and empirical support for each scale and test item and also expands upon the earlier SAI work by using the revised inventory with a larger population. The study also presents accuracy findings using risk range percentiles.

Study Methods: Participants and Procedures

There were 4,493 sex offenders who completed the SAI between August 2009 and March 2012. Participant data were submitted by corrections, probation, and treatment staff across the United States who implemented the SAI as part of their offender screening or clinical intake procedure. Ninety-five percent (4,287) of the offenders were male and 5% were female. The average age of the offenders was 37. The majority of offenders, 67%, were Caucasian, 17% were African-American, 12% were Hispanic, 1% were Asian, 1% were Native American, and 2% of offenders identified as "Other." No additional race or ethnicity information was provided. Forty-eight percent of the offenders were single, 27% were married, 21% were divorced or separated, and 1% were widowed. Offenders were also asked about their education. Approximately 40% of offenders graduated from high school, 26% completed some high school, 20% attended some college, 12% had completed either a bachelors' degree or advanced degree, and 4% had an eighth grade education or less.

When completing the SAI, offenders provided information about their criminal history, which is summarized in Table 1. Ninety-two percent of offenders reported one or more arrests; 37% reported one or more prison sentences; 25% reported one or more violence-related arrests; 75% reported one or more sex-related arrests; 29% reported one or more sexual assault arrests; 30% had one or more child molestation arrests; and 10% had one or more arrests for exhibitionism or incest. Thirty-one percent of offenders had one or more alcohol-related arrests, and 20% had one or more drug-related arrests. Offenders were also asked whether they were registered as a sex offender and were participating in sex offender treatment. Forty-seven percent of tested offenders were registered as sex offenders, and 46% reported being in sex offender treatment.

Study Measure

The initial Sexual Adjustment Inventory (SAI) was developed in part to offer evaluators an instrument to assess offender risk that included static and dynamic factors. Early implementation of the SAI across the United States provided an opportunity to gather data from diverse geographic, racial, cultural, and ethnic populations. The revised SAI (2009) consists of 225 items using a combination of true/false and multiple choice formats. In addition, several self-reported history items linked to offender risk were added, based on support from the research literature.

Table 1: Offender Court History Responses

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Court History Items	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
Arrests	344	8	1,593	37	694	16	452	10	333	7	945	21
Prison sentences	2,724	63	999	23	313	7	174	4	59	1	60	1
Violence-related arrests	3,232	75	608	14	205	5	107	3	52	1	117	3
Sex-related arrests	1,094	25	2,823	65	338	8	70	2	25	<1	23	<1
Sexual assault arrests	3,064	71	1,134	26	108	3	20	<1	7	<1	3	<1
Child molestation arrests	3,015	70	1,199	28	92	2	14	<1	6	<1	13	<1
Exhibitionism arrests	4,113	95	142	3	35	1	15	<1	6	<1	9	<1
Incest arrests	4,026	93	273	6	19	<1	3	<1	1	<1	3	<1
Alcohol-related arrests	3,428	79	471	11	166	4	85	2	63	1	124	3
Drug-related arrests	3,470	80	491	11	174	4	82	2	34	<1	80	2

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The SAI is written at a sixth grade level and takes, on average, 45 minutes to complete. It has 13 scales, six of which are sex-related (Sex Item Truthfulness, Sexual Adjustment, Child Molest [Pedophilia], Sexual [Rape] Assault, Exhibitionism, and Incest Classification), and seven of which are non-sex-related (Test Item Truthfulness, Alcohol, Drugs, Violence, Antisocial, Distress, and Judgment). Inclusion of non-sex-related scales was done to provide a meaningful sex offender profile. All scales, including non-sex-related scales are based on sex offender research and variables associated with risk and recidivism. The revised assessment eliminated several items from the Incest Scale and added the Impulsiveness Scale. Scales are presented in Table 2 and are discussed below.

Offenders known to have perpetrated against both adults and children were more likely to reoffend again against children.

Several aspects set the SAI apart from other sex offender assessment instruments. The SAI is one of a few sex offender tests that include both static and dynamic factors within one instrument. Readers are referred to additional sources that review sex offender scales in greater detail (Craig & Beech, 2009; Craig et al., 2005; Grubin, 2004). In addition, the SAI identifies sexual deviance and paraphilias in people accused or convicted of sex offenses. Perhaps most unique to the SAI is the inclusion of two Truthfulness Scales: The Sex Item Truthfulness Scale and the Test Item Truthfulness Scale. The Sex Item Truthfulness Scale measures client truthfulness while the client is answering sex-related questions. The SAI embodies a candid approach to sex-related questions and makes no attempts to mask, hide, or camouflage sex-related items. In contrast, the Test Item Truthfulness Scale measures truthfulness for client answers on non-sex-related items.

Table 2: Sexual Adjustment Inventory Scales

Sex-Related Scales	Non-Sex-Related Scales
Sex Item Truthfulness	Test Item Truthfulness
Sexual Adjustment	Violence
Child Molest	Antisocial
Sexual Assault	Impulsiveness
Exhibitionism	Alcohol
Incest Classification	Drugs
	Distress

Truthfulness Scales. Links between denial, assessment, and treatment outcome, as well as the presence of denial among offenders and patients are extensively discussed in the research literature (Benedict & Lanyon 1992; Freeman et al., 2010; Greer et al., 2001). Client truthfulness is associated with more positive treatment outcomes (Levenson & Macgowan, 2004; Schneider & Wright, 2004), and denial and problem minimization can amplify lack of treatment progress (Murphy & Baxter, 1997), treatment drop out (Daly & Pelowski, 2000; Evans et al., 2009), and recidivism (Grann & Wedin, 2002; Nunes et al., 2007). Having two Truthfulness Scales in the SAI—sex-related and non-sex-related—enables evaluators and staff to better understand sex offenders' motivation. For example, the client may attempt to minimize or deny only sex-related questions, only non-sex-related questions, or both. It is equally important to know when responses to both sets of test questions are answered truthfully.

Sexual Adjustment Scale. The Sexual Adjustment Scale measures clients' sexual reconciliation or adjustment. This scale, which contains 22 true/false and multiple choice items, reflects satisfaction or dissatisfaction with an offender's sex life. Elevated scores reflect sexual adjustment problems and concerns.

Sex offender research has explored intimacy, attitudes, and attachment among convicted sexual offenders with mixed results (Marshall & Marshall, 2010). Some studies have associated problems in emotional attachment and intimacy with acts of sexual offending while others have not. Many sex offenders have been found to have beliefs regarding gender roles and sexual dominance that influence deviant sexual behavior (Lisak & Roth, 1990).

Results from an extensive meta-analysis revealed that deficits in intimacy (e g., conflicts in intimate relationships, emotionally identifying with children) were associated with recidivism (Hanson & Morton-Bourgon, 2005). Hanson and Bussiere (1998) linked deviant sexual interests to sex offender recidivism, and in a reexamination, Hanson and Morton-Bourgon (2005) confirmed that deviant sexual interests are a strong predictor of sex offender recidivism. Including sexual adjustment in the SAI provides relevant social functioning information that has been linked to sex offender offending.

Child Molest (Pedophilia) Scale. The Child Molest (Pedophilia) Scale measures clients' sexual interests, urges, and fantasies involving prepubescent children. Isolated sexual acts with children do not necessarily warrant the pedophilia label. Pedophilia refers to an intense or pathological sexual interest in children. The Child Molest Scale is a 21-item scale that uses both true/false and multiple choice formats.

Pedophiles are prone to rationalizing their sexual interests in children (Saradjian & Nobus, 2003). Barbaree and Marshall (1988) explored recidivism predictor variables of child molesters and found that deviant arousal, amount of force used against a victim, and the number of previous victims were associated with acts of reoffending. Vess and Skelton (2010) found that for child molesters who molested only children, the recidivism rates were relatively low when compared to sexual offenders who perpetrated crimes with adult only victims or mixed victims; however, the rate of reoffending increased as the level of risk identified at assessment increased. Offenders known to have perpetrated against both adults and children were more likely to reoffend again against children. These findings are notable in that the study followed sexual offenders for 15 years and support the inclusion of the Child Molest Scale.

Sexual Assault Scale. The Sexual Assault Scale measures client proneness to sexual violence, consists of 21 items, and uses true/false and multiple choice formats. Sexual assault, in the SAI, refers to sexual intercourse against the will and over the objections of one's sexual partner and that is accompanied by force or the threat of force.

Recidivism risk factors for rapists are similar to those for other sexual offenders; however, there are specific factors that distinguish them. Craissati and Beech (2004) found that rapists tended to be less compliant in the community with requirements upon release. Findings support age of the rapist with sexual recidivism—younger perpetrators are more likely to reoffend—and

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indicate that attitudes considered tolerant of sexual assault (women and children as property, use of force as acceptable) are considered dynamic risk factors for reoffending (Craig et al., 2005; Pemberton & Wakeling, 2009).

Identifying and classifying thoughts of entitlement, and the propensity to use force have implications for treatment planning. Strategies to address pro-offending attitudes and beliefs may be incorporated into treatment planning across offending subtypes.

Exhibitionism Scale. The Exhibitionism Scale consists of 19 true/false items and measures the probability of an offender's exposing genitalia to strangers. Exhibitionism is characterized by its repetitive, compulsive, and patterned nature (Hall & Hall, 2007; Hoing et al., 2010), and it has been suggested that exhibitionism is the most common sexual offense (Kingston et al., 2006). It has also been suggested that exhibitionists may be more likely to reoffend than other types of sexual offenders (Doren, 2002). These assertions support the inclusion of exhibitionism items in sexual offender assessment.

Incest Classification. Incest classification is unique among the SAI scales; it has only three questions and uses an admission, non-admission format. This is why it is termed a "classification scale" and not a "measurement scale." The purpose of the Incest Classification is to identify individuals who may have been involved in incestuous behavior (sexual relations with a close family member) and to assist program staff in identifying events that may inform treatment planning and rehabilitation efforts. Combining classification and scale measures within an instrument has been accepted within the medical, psychological, and mental health fields (Kessler, 2002).

Recidivism research on incest offenders suggests distinct patterns, rates, and predictors of recidivism (Harris & Hanson, 2004; Kingston et al., 2008). The National Center for Victims of Crime (2012) reported some startling statistics about victims of incest. Citing a study by Vanderbilt, female and male victims of incest in the study reported eating disorders and sexual problems in their adult life. The study reports that approximately 60% of the women stated that they never or rarely went to the doctor or the dentist because the examination was too terrifying for them. The National Center for Victims of Crime also reports that children who have been sexually abused by a relative suffer more guilt and shame, lower self-esteem, more severe depression, and more self-destructive behavior than children who have been sexually assaulted by a stranger.

The psychological effects of incest can have lasting implications that extend into adulthood. Addressing incest early in the assessment process helps clarify this potentially traumatic area of inquiry and supports the inclusion of the Incest Classification in a sex offender assessment.

The sex-related scales discussed above are interpreted using the Sex Item Truthfulness Scale. An invalid score on the Sex Item Truthfulness Scale can provide insight into client guardedness and self-protective behaviors associated with their sexual behavior. The Test Item Truthfulness scores are similarly used to interpret the non-sex-related scales (Alcohol, Drugs, Violence, Antisocial, Distress, and Impulsiveness). The factors associated with the non-sex-related test items and scales have been strongly correlated with sex offender recidivism, and their inclusion in the SAI provides evaluators with salient information regarding offender risk.

Alcohol and Drug Scales. The Alcohol and Drug Scales measure substance use and severity of abuse. Both scales contain 19 items that use true/false and multiple choice formats. Substance abuse is considered a dynamic factor amenable to change through treatment (Craig et al., 2005). Moreover, substance abuse is closely associated with sexual offending. In a recent, comprehensive review of the substance abuse and sexual offending literature, Kraanen and Emmelkamp (2011) identified 14 studies that examined substance (alcohol and drug) misuse and abuse history among sex offender types. Rapists' history of alcohol abuse ranged from 35% to 82% and was 65% for drug abuse. Child molesters' history of alcohol abuse ranged from 27% to 67%, and from 5% and 41% for drug abuse. Incest offenders' history of alcohol abuse ranged from 27% to 50%, and from 5% to 85% for drug abuse. One study examining exhibitionist alcohol misuse reported that 27% of exhibitionists had a history of alcohol misuse and 35% had a history of drug misuse. More rapists and child molesters had a history of alcohol misuse than nonsexual violent offenders had. In addition, it was reported that approximately 61% of sex offenders with paraphilias had a history of both alcohol and drug disorders, and 57% were diagnosed with lifetime alcohol dependence.

A relationship between substance misuse and abuse and sex offenders has been clearly established, and substance abuse is recognized as a dynamic factor that is associated with recidivism risk. Identification of alcohol and drug misuse and abuse is critical when addressing treatment alternatives for sex offenders.

Violence Scale. The Violence Scale contains 30 items and uses a true/false format that measures an offender's probability of violence. The scale also identifies individuals who are a danger to themselves and to others. Violence is a static risk factor that has demonstrated high predictive capabilities for general and sex offender recidivism (Craig et al., 2005; Hanson & Morton-Bourgon, 2005; Vess & Skelton, 2010).

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In a recidivism study that examined rapists, child molesters, and mixed-victim offenders, Vess and Skelton (2010) found that approximately half of offenders with a history of offending against adults reoffended in a sexual or violent way. The risk range was 20% for low-risk offenders and more than 70% for high-risk offenders. Results for offenders with a history of offending against children were similar, in that approximately 50% of high-risk offenders reoffended in a sexual or violent way. Identification, early in the assessment process, of offenders with violence potential helps professionals complete proper risk classifications for supervision, detention, and treatment.

Antisocial Scale. The Antisocial Scale contains 23 items and uses a true/false format. Antisocial orientation traits (e.g., history of rule breaking, antisocial behaviors) have been associated with sex offenders (Mills et al., 2004) and identified as reliable predictors of recidivism among sex offenders and non-sex offenders (Hanson & Morton-Bourgon, 2005). An antisocial orientation does not fall neatly into a static or dynamic risk factor category;

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it combines historical information (history of rule breaking) and dynamic offender characteristics that are amenable to change (Yates, 2009). Inclusion of antisocial items in a sex offender assessment provides specific information about offender risk and recidivism potential. It can also suggest treatment options. Antisocial orientation, as a dynamic factor, may be successfully addressed in treatment.

Distress Scale. The Distress Scale contains 22 items and uses a true/false format that measures two symptom clusters—anxiety and depression. The merging of these symptom clusters is clear in the definition of dysphoria (American Psychiatric Association, 2000). Moreover, emotional distress has been shown to be related to illegal activities and aggression, as well as to risk taking in sexual relationships (Cherek et al., 1997; Giotakos et al., 2003). Anxiety was also found to be present in higher rates for sex offenders than for non-sex offenders (Lyn & Burton, 2005). Although not specifically associated with sex offender recidivism, symptoms of anxiety and depression (distress) can be important factors to address when recommending treatment.

Inclusion of antisocial items in a sex offender assessment provides specific information about offender risk and recidivism potential.

Impulsiveness Scale. The Impulsiveness Scale is a non-sex-related scale that contains 19 true/false and multiple choice items that address an offender's propensity to act hastily and without reflection. Research has demonstrated a relationship between impulsivity and illegal activities, including sexual offenses (Baltieri & de Andrade, 2008). Meta-analysis results have found that problems with self-regulation (which includes impulsivity) were associated with rates of reoffending (Hanson & Morton-Bourgon, 2005). Additionally, several studies have demonstrated that higher levels of impulsiveness in sex offenders are associated with treatment attrition (Kravitz et al., 1999; Pelissier et al., 2003). The Impulsiveness Scale detects problems with impulsivity that may compromise offender treatment and contribute to recidivism risk.

Risk Ranges

For each SAI scale, respondents are classified into four risk ranges: low risk (zero to 39th percentile), medium risk (40th to 69th percentile), problem risk (70th to 89th percentile), and severe problem (90th to 100th percentile). Risk ranges represent degree of severity and were established by converting raw scores to percentile scores by using cumulative percentage distributions (Behavior Data Systems, 2012). This is similar to the way in which students are assigned grades or scores for grading purposes in school. The 70th percentile is often used for passing grades, and this same percentile initially began as a working criterion. Similarly, the 90th percentile is a benchmark for identifying severe problems. Early instrument development included the use of content experts to confirm the proposed risk ranges. Data analyses, in combination with field reports from experienced evaluators over five years, have confirmed that these percentile categories provide accurate identification of problem behavior (Behavior Data Systems, 2012).

In addition to establishing risk thresholds, the risk ranges serve an important role when interpreting Truthfulness Scale scores. A truthfulness concern is identified when a Truthfulness Scale score is at or above the problem risk range (70th percentile). These respondents are typically cautious, guarded, or may be defensive in their answers. Scores in the problem risk range should be interpreted cautiously. Severe problem scores on the Truthfulness Scale (90th percentile and above) invalidate all scale scores. This approach is applied with both the non-sex Test Item Truthfulness Scale and the Sex Item Truthfulness Scale. Classifying offenders according to predefined risk ranges provides an efficient and reliable solution for determining offender risk; the impact of truthfulness on test scores is largely contingent on the severity of the client denial or problem minimization (Behavior Data Systems, 2012).

Study Results

Test Reliability. Test reliability refers to a scale's consistency of measurement. Cronbach's alpha, a measure of reliability, was used to measure the internal consistency of the items in each of the SAI scales. Perfect reliability is 1.00, and the professionally accepted standard of reliability that is often reported is 0.75 (Nunally, 1978). Some researchers have suggested that reliability coefficients between 0.60 and 0.90 may be appropriate depending on the nature of the instrument and the construct being measured (Murphy & Davidshofer, 2001). Table 3 displays reliability coefficients for each SAI scale, as well as the number of items within each scale. All SAI scales demonstrate high to moderately high reliability coefficients.

Inter-item correlation coefficients are an alternative method for measuring the internal consistency of an instrument. It has been suggested that the use of inter-item correlation coefficients as measures of internal consistency may distinguish homogeneity of a scale from item redundancy (Boyle, 1991). Neuendorf (n.d.), citing Clark and Watson, recommends inter-item correlation coefficients of between 0.15 and 0.50 when measuring a broad construct, and 0.40 and 0.50 when measuring a narrower construct. The inter-item correlation coefficients for the SAI scales range between 0.145 and 0.796.

Test accuracy for the SAI was calculated by comparing the differences between predicted placement of individuals in risk ranges and their actual placement in the ranges. Small differences between predicted and attained placement represent high test accuracy. As illustrated in Table 4, 39% of clients are predicted to score within the low-risk range for the Violence Scale. The actual percentage of individuals

Table 3: Reliability Coefficients

Non-Sex-Related Scales	Alpha	Items
Test Item Truthfulness	0.90	17
Alcohol	0.92	18
Drugs	0.91	18
Violence	0.89	21
Antisocial	0.82	23
Distress	0.91	22
Impulsiveness	0.91	19
Sex-Related Scales	**Alpha**	**Items**
Sex Item Truthfulness	0.86	22
Sexual Adjustment	0.81	20
Child Molest	0.87	20
Sexual Assault	0.78	20
Exhibitionism	0.75	14

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who scored in this range was 39.4%, which is 0.4 percentage points above the predicted 39% for low-risk Violence Scale scores. The largest predicted-attained score difference is in the medium-risk range, on the Sex Item Truthfulness scale. All other scale comparisons were even more accurate.

Validity. The SAI is designed to identify individuals who are at risk for reoffending and who present a danger to the community. For this study, the validity of the SAI was established by using contrast groups, differentiating between offenders who are known to have higher risk factors and those known to have lower risk factors by comparing mean scale scores (DeVon et al., 2007). Prior history of sex-related arrests is an established predictor of offender recidivism, and those with fewer arrests present lower risk (Craig et al., 2005). For this analysis, individuals with one arrest were categorized as first-time offenders and offenders with two or more arrests were categorized as multiple offenders. It was anticipated that multiple offenders' mean scale scores would be higher than first-time offenders' mean scale scores. There were 3,917 (87%) first-time offenders and 456 (10%) multiple offenders used in this analysis. There were 119 missing data.

A comparison between mean scores (in parentheses) of first-time offenders and multiple offenders found higher mean scale scores for multiple offenders on the scales for:

- Alcohol (5.98, 9.69);
- Drug (6.93, 10.21);
- Violence (8.59, 12.98);
- Antisocial (8.73, 11.16);
- Distress (10.88, 12.37);
- Impulsiveness (9.59, 11.15);
- Sexual Adjustment (15.53, 22.40);
- Child Molest (9.43, 15.19);
- Sexual Assault (7.41, 12.12); and
- Exhibitionism (1.58, 4.32).

On both Test Item Truthfulness (8.13, 7.45) and Sex Item Truthfulness Scales (10.44, 9.30), first-time offenders had higher mean scores. This phenomenon has consistently been observed in earlier SAI research and is addressed further below.

T-test analyses were conducted to examine whether the differences in mean scores were statistically significant. Results indicated that the differences were statistically significant for scales for:

- Alcohol $t(4371) = -6.23$, $p < 0.001$, 95% CI [–4.88, –2.5];
- Drugs $t(4371) = -5.58$, $p < 0.001$, 95% CI [–4.42, –2.12];
- Violence $t(4371) = -8.32$, $p = 0.01$, 95% CI [–5.43, –3.36];
- Antisocial $t(4371) = -5.49$, $p < 0.003$, 95% CI –3.29, –1.56];
- Distress $t(4371) = -2.54$, $p < 0.04$, 95% CI [–2.65, –0.343];
- Impulsiveness $t(4371) = -2.79$, $p < 0.003$, 95% CI [–2.65, –0.466];
- Child Molest $t(4371) = -8.72$, $p < 0.001$, 95% CI [–7.04, –4.46];
- Sexual Assault $t(4371) = -11.67$, $p < 0.001$, 95% CI [–5.49, –3.91]; and
- Exhibitionism $t(4371) = -11.96$, $p < 0.001$, 95% CI [–3.18, –2.28].

With Truthfulness Scales as the exceptions, higher SAI mean scores were obtained by offenders with multiple sex-related arrests when compared to first-time offenders.

Incest Classification. The SAI Incest Classification is used to identify individuals who have perpetrated incest. The classification has three items that limit the type of statistics available to assess reliability. Construct validity was established for the classification by comparing the responses of offenders to the test item *Excluding my spouse (husband or wife) I have had sex with a member of my family* and the mean Incest Classification score. It is expected that individuals who reported perpetrating incestuous acts would have higher scale scores than individuals who did not report perpetrating incestuous acts. Results revealed that individuals who admitted to having sex with a family member had a higher mean score (1.91) than individuals who denied having sex with a family member (0.15) on the Incest Classification.

Table 4: Accuracy of SAI

Scales	Predicted Low Risk = 39%		Predicted Medium Risk = 30%		Predicted Problem Risk = 20%		Predicted Severe Risk = 11%	
	Actual Score	Difference	Actual Score	Difference	Actual Score	Difference	Actual Score	Difference
Test Item Truthfulness	42.6	(+3.6)	21.5	(+8.5)	25.5	(+5.5)	10.4	(–0.6)
Alcohol	34.5	(+4.5)	35.7	(+3.3)	19.6	(–0.4)	10.1	(–0.9)
Drugs	43.0	(+4.0)	27.6	(–2.4)	19.0	(–1.0)	10.4	(–0.6)
Violence	39.4	(+0.4)	30.9	(+0.9)	19.6	(–0.4)	10.1	(–0.9)
Antisocial	37.7	(–1.3)	32.7	(+2.7)	19.0	(–1.0)	10.5	(–0.5)
Distress	40.2	(+1.2)	30.6	(+0.6)	19.2	(–0.8)	10.4	(–0.6)
Impulsiveness	39.3	(+0.3)	30.8	(+0.8)	19.4	(–0.6)	10.1	(–0.9)
Sex Item Truthfulness	37.7	(–1.3)	40.5	(+10.5)	19.5	(+0.5)	2.4	(–8.6)
Sexual Adjustment	40.9	(+1.9)	29.7	(–0.3)	19.1	(–0.9)	10.3	(–0.7)
Child Molest	35.6	(–3.4)	35.2	(+5.2)	18.7	(–1.3)	10.5	(–0.5)
Sexual Assault	39.2	(+0.2)	31.1	(+1.1)	19.1	(–0.9)	10.6	(–0.4)
Exhibitionism	37.4	(–1.6)	29.5	(–0.5)	17.0	(+3.0)	12.1	(+1.0)

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Results of a t-test $t(4485) = 72.58$, $p < 0.001$, 95% CI [1.71, 1.80] confirm the validity of the Incest Classification.

Advantages, Limitations, and Recommendations

Assessment instruments offer an advantage over clinical interviews in determining the risk associated with sex offender recidivism (Craig & Beech, 2009). The SAI results (reliability, validity, accuracy) support the SAI's use as sex offender assessment.

Reliability analyses demonstrated moderately high to high internal consistency, and inter-item correlations confirm that scale items are representative of the constructs they are measuring and were not items repeatedly reworded. The SAI accurately predicted offenders' risk range percentages of the offenders within 5.8 percentage points and effectively differentiated between first-time offenders and multiple offenders. Higher mean scale scores of first-time offenders on both Truthfulness Scales (sex-related and non-sex-related) may reflect offenders' inexperience with the criminal justice system or assessment process. These individuals may, naively, engage in more denial and attempts at minimizing their problems, whereas multiple offenders (who have had more experience with assessment) may be aware that denial, minimization, and deception will be detected. Results validate the SAI as a reliable and accurate sex offender assessment inventory.

Despite the above findings, there are some limitations related to this study, the results, and the SAI. These limitations include issues of administration, psychometric properties, and participant characteristics. The limitations are discussed below along with suggested areas of future research.

As noted above, the authors and test designers have limited knowledge, and input into, the ways in which the SAI is administered to offenders by the various agencies. Participant data were returned to the authors for analysis and interpretation, and inconsistencies in test administration may affect results. Field research using the SAI should include a description of administration procedures as well as examine the accuracy of risk prediction on recidivism rates. To this end, collaboration with agencies to examine recidivism rates and treatment outcomes, along with test data, would expand the existing knowledge of sex offender recidivism and treatment planning. Moreover, access to these additional variables would facilitate prediction model studies using advanced correlation approaches (Bellini & Rumrill, 2009).

Despite its impressive reliability, it is generally accepted that Cronbach's alpha reliability coefficients are directly proportional to the number of test items (Murphy & Davidshofer, 2001). With 225 items, the high reliability coefficients that were obtained may be the result of the large number of items; however, the inter-item correlations seem to challenge this assertion.

The percentage of female sex offenders that were used in the analysis was relatively small. Research into tendencies and behaviors of female sex offenders suggests distinct differences when compared to male offenders (Elliot et al., 2010). These differences may or may not be adequately assessed by the SAI, and future research may identify specific predictors or indicators unique to female offenders. Moreover, the percentages of Native American and Asian offenders in this study were also small. There appears to be a dearth of sex offender research that examines these groups, and more research may lead to specific predictors unique to these specific populations.

Assessment instruments offer an advantage over clinical interviews in determining the risk associated with sex offender recidivism.

The process of offender screening and initial classification typically takes place in diagnostic centers where approximately 70% of offenders receive an assessment (Coolidge et al., 2009). The screening process often involves the administration of a "quick risk" assessment to aid in the initial incarceration decisions. These brief evaluations may be followed by more extensive and thorough evaluations to determine treatment options and rehabilitation recommendations (Christensen & Warwick, 2009). By including both static and dynamic factors in one assessment, the SAI provides an alternative to the use of multiple intake tests by probation, corrections, and treatment staff. This is particularly important when resources (budgetary, staff, facilities) are limited. The SAI provides insight into sex-related deviances and paraphilias, as well as other co-morbid factors including substance abuse, antisocial tendencies, distress, and violence. By including both sex-related and non-sex-related scales, the SAI provides a more complete picture of the offender and his or her risk profile.

Earlier SAI research (Davignon, 2002) demonstrated that the SAI identifies problem behaviors and accurately categorizes offenders into appropriate risk ranges. Accurately assessing problem severity reduces recidivism of sexual offenders when paired with appropriately matched treatment (Andrews & Bonta, 2010). Therapists and treatment programs that respond to sex offender problem severity and target factors in treatment that are associated with recidivism can effectively influence reoffending rates and community reintegration efforts (Hanson et al., 2009).

The development of contemporary sex offender assessments has improved the identification and risk classification of sex offenders, and the implementation of assessments has demonstrated significant advantages over interviews and clinical impressions. Properly identifying offenders, using a well-developed assessment instrument, should be part of an overall public safety strategy (Andrews & Bonta, 2010). Associated benefits of assessment integration include reduced recidivism, reduced costs, and increased public safety. The SAI offers probation, corrections, and treatment staff a reliable and valid instrument for assessing sex offenders. These assessment features are essential when identifying individuals who demonstrate higher severity and consequently may have more complex treatment needs (PEW Center on the States, 2011).

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